(54) Title: VLAN TABLE MANAGEMENT FOR MEMORY EFFICIENT LOOKUPS AND INSERTS IN HARDWARE-BASED PACKET SWITCHES
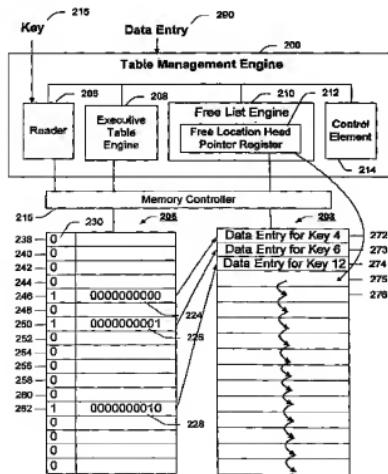
(57) Abstract: Described herein is a method and
apparatus for memory efficient fast VLAN lookups
and inserts in hardware-based packet switches.
A table management engine (TME) is introduced
into the switches to accelerate date searches and
management. The TME manages a memory which
is devided into two tables, one containing the data
entries ("data entry table" 203), one containing the
pointers and validity bits ("pointer table" 205). The
TME comprises a reader/hasher (206), an executive
table engine (208), a free list engine (210) and a
control element (214). The reader/hasher obtains
content from a key, which can be a VLAN rule.
The executive table engine uses the kex content to
address a pointer location in memory to retrieve the
data. The executive table engine is also responsible
for writing /deleting data into the memory and for
pointers management.